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<b>(21) International Application Number:</b> PCT/US98/07567 <b>(22) International Filing Date:</b> 14 April 1998 (14.04.98)  <b>(30) Priority Data:</b> 60/043,248 16 April 1997 (16.04.97) US 09/060,343 14 April 1998 (14.04.98) US  <b>(71) Applicant:</b> STARSIGHT TELECAST, INCORPORATED [US/US]; 3rd floor, 39650 Liberty Street, Fremont, CA 94538 (US).  <b>(72) Inventor:</b> LEFTWICH, Jim; Suite F, 131 Hawthorne Avenue, Palo Alto, CA 94301 (US).  <b>(74) Agents:</b> KRUEGER, Charles, E. et al.; Townsend and Townsend and Crew LLP, 8th floor, Two Embarcadero Center, San Francisco, CA 94111-3834 (US).		<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>Without international search report and to be republished upon receipt of that report.</i>
<b>(54) Title:</b> MULTIPLE DATABASE, USER-CHOICE-COMPILED PROGRAM AND EVENT GUIDE		
<b>(57) Abstract</b>  An electronic programming guide generator utilizes filters to select only programming filtered to display in an electronic programming guide display.		

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## MULTIPLE DATABASE, USER-CHOICE-COMPILED PROGRAM AND EVENT GUIDE

### 5 BACKGROUND OF THE INVENTION

The present invention generally relates to television schedule information, and more particularly to a system and method for providing previews of scheduled programming to assist a viewer in making scheduling decisions.

10 As the number of television stations in a metropolitan area or on a cable network has increased, the number of programs of potential interest that are presented to a viewer has risen dramatically. With the use of dish antennas capable of receiving direct satellite signals, the  
15 multitude of programs available to the viewer has further increased.

Additionally, television faces a digital future that will see the merger of television and PC technology. The television set of the future will include a micro-computer, a  
20 modem of interconnectivity with other computers over networks, intranets, and the internet, and be connectable to computer peripherals such as printers. Such capabilities as near "video on demand" (NVOD), "video on demand," "access to the world wide web," "audio on demand," etc., will present the  
25 viewer with a plethora of information and bandwidth.

As has become increasingly evident, information overload can actually reduce the usefulness of the information delivered. Accordingly, a great challenge exists to provide an interface that manages and provides an intelligent,  
30 user-friendly interface to the information available.

Consequently, television schedule systems that are provided directly on the viewer's television screen have been developed to assist the viewer in sorting through these various programs and determining which programs to watch or  
35 record. One such television schedule system is disclosed in commonly assigned U.S. Patent No. 5,353,121 (Young et al.), the complete disclosure of which is hereby incorporated by reference. In one embodiment of Young, the television

schedule includes a series of menu screens having an array of cells corresponding to different television programs. The viewer may scroll through the cells to view which television programs are being presented on various channels at various times. In addition, the viewer may select certain cells to obtain more information on the associated program or to pull up other submenus with additional options.

The recent development of television schedule systems, such as the above described patent to Young, have created many new challenges. Today's guides have only a single source listing, with all available programming presented in a time-based schedule grid. There is also no current ability to allow third parties with different finding/filtering criteria to create useful listings and/or access for viewers.

Also, there is an increasingly important dual need among users to both screen out unwanted programming and find desired programming. As the number of programs/events accessible increases, these issues will become even more important and current strategies such as simple program ratings will not be effective or efficient enough to handle these interrelated user needs.

#### SUMMARY OF THE INVENTION

The present invention is related to the complementary aspects of Finding Programming and Blocking Programming. The model assumes that certain channels are available to a viewer and other channels are accessible.

According to one aspect of the invention, Editable Filters (EFs) are created based on a standardized program database. These EFs include a basic menu supplied upon startup and optional menus which could be included in the SS database or be downloadable from the WWW. Third party editors will be able to build an EF by utilizing entries which are used to interact with the DB.

According to another concept of the invention, the editable filters are ordered in a hierarchy. Channel select and parental control filters will supersede all other filters.

Thus, even if a selected EF allows a program, parental control will override the selection.

According to another aspect of the invention, the viewer will register to use a list.

5 Other features and advantages will be apparent in view of the detailed description filed herewith and the following claims.

#### BRIEF DESCRIPTION OF THE DRAWINGS

10 Fig. 1A is a schematic drawing of a television system;

Fig. 1B is schematic diagram depicting of an implementation of a filter;

15 Fig. 2A is a schematic diagram depicting source provider guide listings and third-party edited listings;

Fig. 2B is a schematic diagram depicting alternative formats of an EPG display;

Fig. 3 is a schematic diagram of a system of selecting filters; and

20 Fig. 4 is a schematic diagram depicting program/event sources for a PCTV utilizing a filter system.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

25 Electronic programming guides (EPGs) are well-known in the art. One type of programming guide is provided by the assignee of the present invention, StarSight and described in U.S. Patent No. 5,169,274, is displayed as a grid of program entries with the vertical axis of the grid being the channels or program sources of program entries and the horizontal axis  
30 being starting times of programming entries. Other EPGs are provides by satellite services.

An EPG is generated from a data base based on programming provided by a local service provider. Existing  
35 EPG services include some program blocking features and also provide for selecting favorite channels and ordering the channels in a preferred manner.

In a preferred embodiment, the electronic program guide of the invention may be implemented either on a personal computer, a PCTV, a television connected to a set-top box, or a television including a custom board. However, the invention is not limited to any particular hardware configuration and will have increased utility as new combinations of computers and television systems are developed. In the following, any of the above will sometimes be referred to as a "TV system." Block diagrams of representative TV systems are depicted in Fig. 1A. Details of implementation are not depicted because the invention is not limited to any particular TV system.

As is well-known, the picture to be displayed may be transmitted as an analog signal, for example according to the NTSC standard utilized in the United States, or as a digital signal modulated onto an analog carrier. The signals may be received over a cable or via an antenna or satellite dish. Typically, television sets are designed to receive analog signals and computer display devices are designed to display pictures encoded in a digital format. However, the decoder system converts the digital data to an analog signal for display on a television set and TV modems can format analog TV signals for display on a monitor.

In Fig. 1A, analog or digital TV signals, received via cable 30, antenna 32, or satellite dish 34, are provided to a television system. If the signal is from a digital broadcast service, then a decoder 36 converts the signal to baseband video and audio or channel 3/4 RF. If the signal is an analog signal it is passed through as a live video output. The television system 38, depending on its configuration, receives selected ones of the outputs and displays the received program.

A PCTV includes a TV card 42, connected to either live video, baseband video, or channel 3/4 output, digitizes the video image and displays the video image in a resizable window on the computer monitor. The PCTV is also coupled to land telephone lines by a modem 44.

If the received signal is an analog TV signal, the TV card of the PCTV digitizes the analog signal and extracts

included information from the vertical blanking intervals. On the other hand, if the signal is a digital signal, separate audio, video, VBI (vertical blanking information such as closed caption, teletext, and program related information), program guide, and conditional access information are provided as separate bitstreams. The video and audio bitstreams for programs are converted to a format for display and the program guide information is processed to form a program guide database. The processor, executing software stored in memory, generates interactive electronic program guide images and images of received programs. The guide can be used to interact with and control programs displayed in the window.

In a preferred embodiment of the invention, filters are utilized to select and screen programming displayed by an EPG. In this context, a filter is a mechanism for selecting programs based on a selected criteria.

However, for a filter to be useful in the present context, it is in the form of a list of programs or event entries where the entries must be in a format usable by the EPG generating system.

An example of a usable format for filters is depicted in Fig. 1. In Fig. 1, a filter 100 is a list of program or event entries 102. The filter entitled "The Sci-Fi Fan's Guide" is a list of programs selected according to a criteria that selects programs of interest to sci-fi fans.

The format for a program or event entry is depicted in the table 104. The information in the table is used by the EPG generating system to generate an EPG display as described below. The table could be formatted in HTML so that the filter entries 102 could be displayed in a user friendly format 106.

In a preferred embodiment both service provider guide listings and third-party edited guide listings are utilized to select programming displayed in the EPG.

Examples of Subscription-based, Filtering  
Program/Event Services; live or archived

e.g.: **The Family-Friendly subscription service**

5 (delivering a described/understood mix of general  
audience programs/events, some of which may be  
custom-selected according to a subscriber's viewing  
history/preferences.)

e.g.: **The Science Source subscription service** (delivering  
10 a described/understood mix of science-related  
programs/events, some of which may be custom-  
selected according to a subscriber's viewing  
history/preferences.)

e.g.: **Bob Smith's Cult Film Access Listing** (allowing a  
15 Starsight user to incorporate a third party's list  
into the Guide) (providing access links to a  
described/understood mix of cult film-related  
programs/events.)

Fig. 2 illustrates the use of third-party edited  
guide listings. The entire universe of available programming  
20 is indicated by the list of all programs/events provided by  
the local service provider 200.

As depicted in Fig. 2A, some of the programs listed  
in the Sci-Fi Fan's Guide are either not available (light gray  
bar) or available/not accessible (dark gray bar). A program  
25 available but not accessible is a premium program not  
subscribed to by the user.

The EPG generator utilizes to filter to display  
those programs available/accessible in the EPG.  
Alternatively, programs available/not accessible might also be  
30 displayed as an incentive to the viewer to subscribe to the  
premium program which meets a selected filter's criteria.  
This could be a powerful revenue generator for the service  
provider.

Fig. 2B depicts alternate ways of formatting an EPG.  
35 For programs events which are available only at prescribed  
times the show listings are displayed in a grid 250. Those  
programs/events which are randomly accessible, e.g., archives,



libraries, file libraries, etc., appear in a list section of the EPG.

In a preferred embodiment, the actual filtering of the programs to be displayed in an EPG is performed utilizing the Program\Event ID in the entry table 104 (Fig. 1).

In the present embodiment, the EPG generator provides an interactive filter selective mechanism. In Fig. 3, a user configuration screen 300 lists both service provider filters 302 and third-party filters 304. Each time a new filter is added it is registered with the EPG generator and added to the list in the user configuration screen 300. Only those programs filtered by the selected filters will be displayed on the EPG screen 306.

In a preferred embodiment, the filters may be prioritized. For example, in a family with small children the most important criteria might be that a program be included in the Family Friendly Viewing filter. This filter is assigned the highest priority. Then, for example, a program included in the Sci-Fi Fan's filter but not included in the Family Friendly Viewing filter would not be displayed in the guide. Further, the filters could be prioritized by time. Family Friendly Viewing would have the highest priority during the hours when children are viewing and then automatically drop to a later priority during late hours.

In the example described above with reference to Fig. 2A, the filters were applied to programming provided by the local service provider over a cable. However, as depicted in Fig. 4, the filters may also be applied to programs and events delivered by non-cable sources such as wireless, Internet, and satellite. These non-cable sources 400 supply program guide data to the EPG generator 402 which is stored in a data base. The filters can then be applied to program data stored in the data base to generate a filtered EPG for cable and non-cable programming.

Another use of non-cable supplied information is to use the internet to provide offers for premium cable-supplied subscription services. The subscription is initiated through

the internet and premium subscription service is made available to the user.

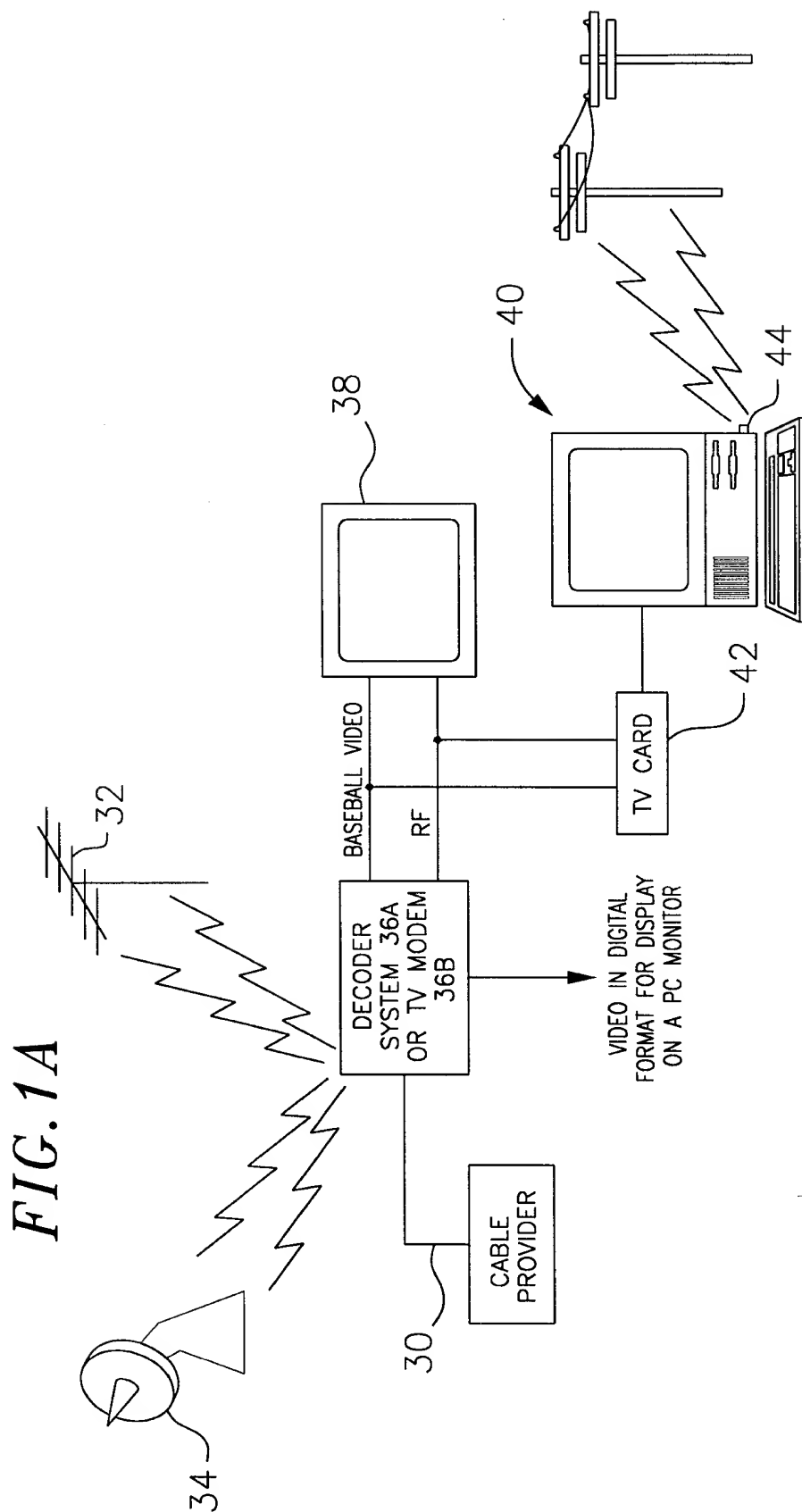
WHAT IS CLAIMED IS:

1           1.    A method for managing programming comprising:  
2           storing a database of available programming;  
3           utilizing a first filter, which selects a first  
4   subset of programs according to some criteria, to generate an  
5   electronic program guide displaying programming includes in  
6   said first subset.

1           2.    The method of claim 1 further comprising the  
2   step of:  
3           utilizing said first filter and a second filter,  
4   with the second filter selecting a second subset of programs  
5   according to another criteria, to generate an electronic  
6   programming including all programs included in either said  
7   first or second subsets.

1           3.    The method of claim 1 further comprising the  
2   step of:  
3           utilizing said first filter and a second filter,  
4   with the second filter selecting a second subset of programs  
5   according to another criteria and having a higher priority  
6   than said first filter, to generate an electronic programming  
7   including only programs included in both said first and second  
8   subsets.

1           4.    The method of claim 1 further comprising the  
2   step of:  
3           creating a filter utilizing program/event entries in  
4   the programming database.



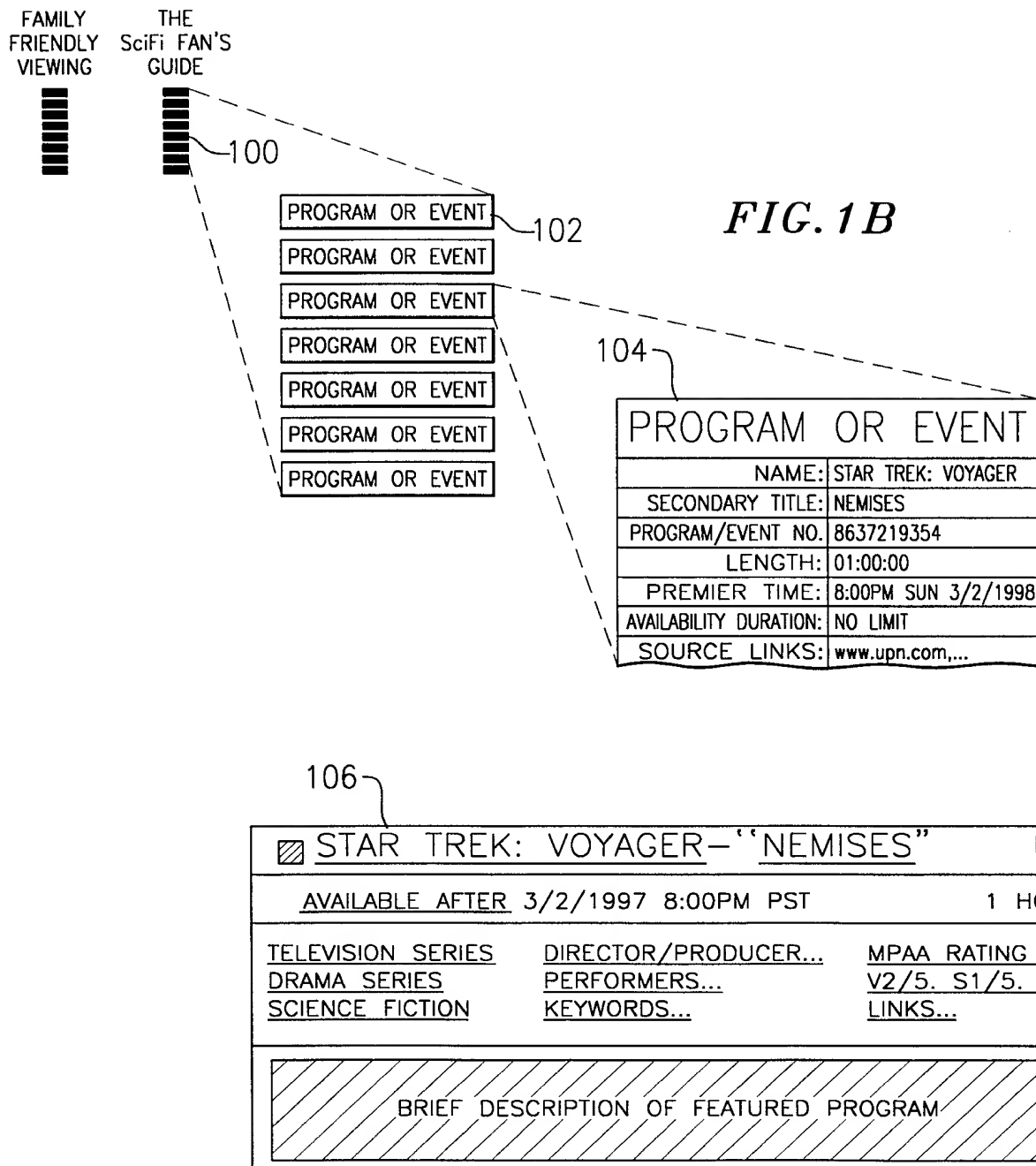


FIG. 2A

## AUTOMATIC FILTERING OF THIRD-PARTY EDITED LISTINGS BY WHAT'S AVAILABLE/ACCESSIBLE

ALL  
PROGRAM/EVENTS  
AVAILABLE THROUGH  
LOCAL SERVICE  
PROVIDER

## SERVICE PROVIDER GUIDE LISTINGS

ALL PROGRAM/EVENTS ARE AVAILABLE,  
THROUGH ACCESS MAY BE CONDITIONAL  
(PAY, ETC.)

### THIRD-PARTY EDITED LISTINGS

BLACK INDICATES PROGRAM/EVENT I.D.  
MATCHES WITH THOSE AVAILABLE FROM  
LOCAL SERVICE PROVIDER

## LOCAL & REGIONAL PROGRAMS, EVENTS

## BASIC SERVICE PROGRAMS/ EVENTS

PREMIUM  
CHANNEL  
PACKAGE  
1

PREMIUM  
CHANNEL  
PACKAGE  
2

## THE SciFi FAN'S GUIDE

FAMILY  
FRIENDLY  
VIEWING

ROGER  
EBERT'S  
MOVIE  
CLASSICS

THE  
NATURAL  
EXPLORER

 — AVAILABLE/ACCESSIBLE  
 — AVAILABLE/NOT ACCESSIBLE  
 — NOT AVAILABLE/NOT DISPLAYED

200

FIG. 2B

250

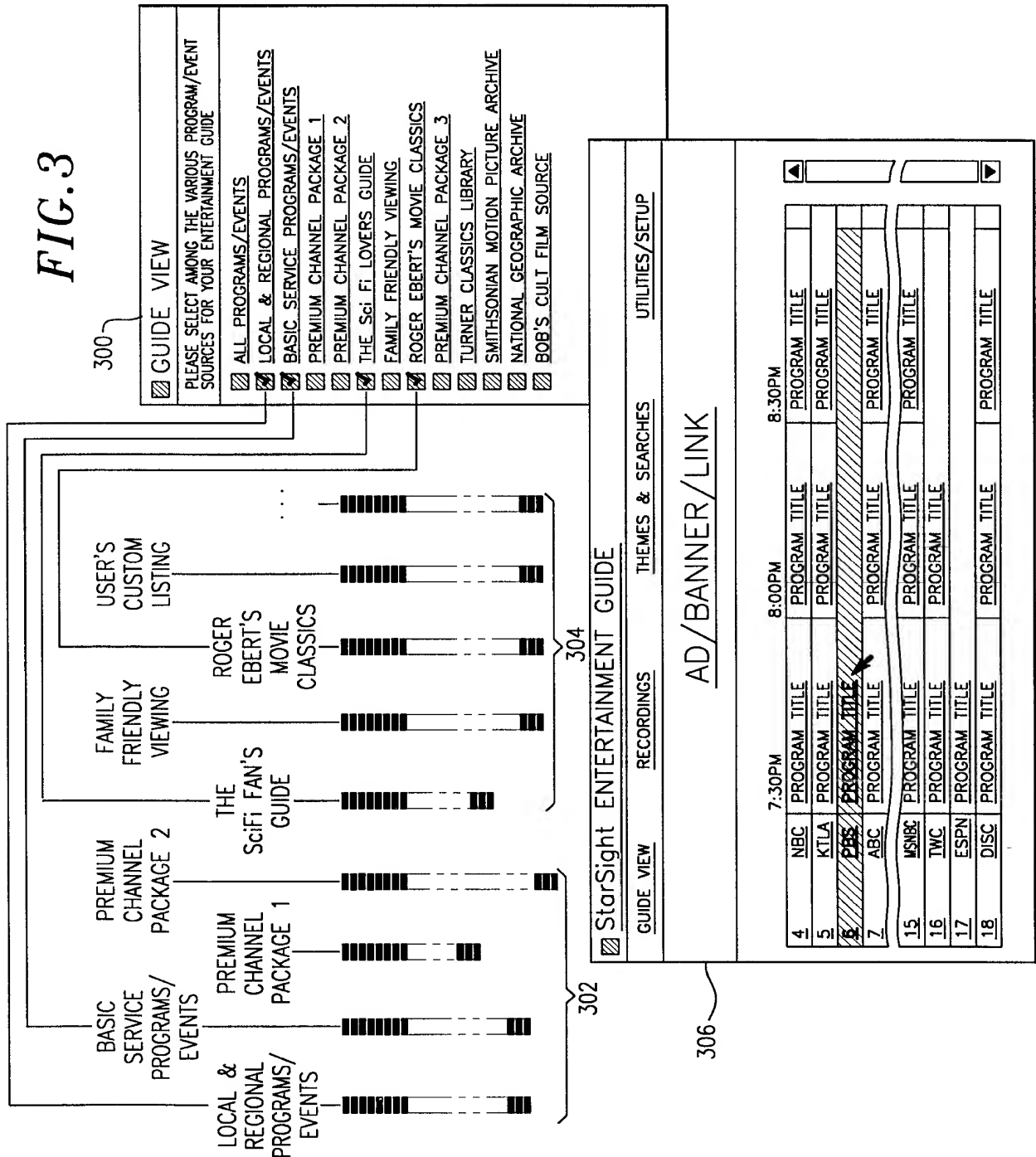
CH	8:00PM	8:30PM	9:00PM	9:30PM
2	PROMISE LAND	VERONICA'S CLOSET	HOME IMPROVEMENT	NEWS
3	LOCAL PROGRAM	LOCAL PROGRAM	SEINFELD	JUST SHOOT ME
4	FRIENDS	THE SIMPSONS	NEWS	LOCAL NEWS
5	RUNNING MAN	GOING PLACES	HAPPY DAYS	BASEBALL
6	EL NINO	PAID PROGRAM	NEWS	PAID PROGRAM
7	NEWS	LAW & ORDER	LAW & ORDER	NEWS
8	STAR TREK	SPORTS CENTER	SILK STALKING	SILK STALKING
9	SEA QUEST	RECUE 911	ROBO COP	ROBO COP
◀				▶

252

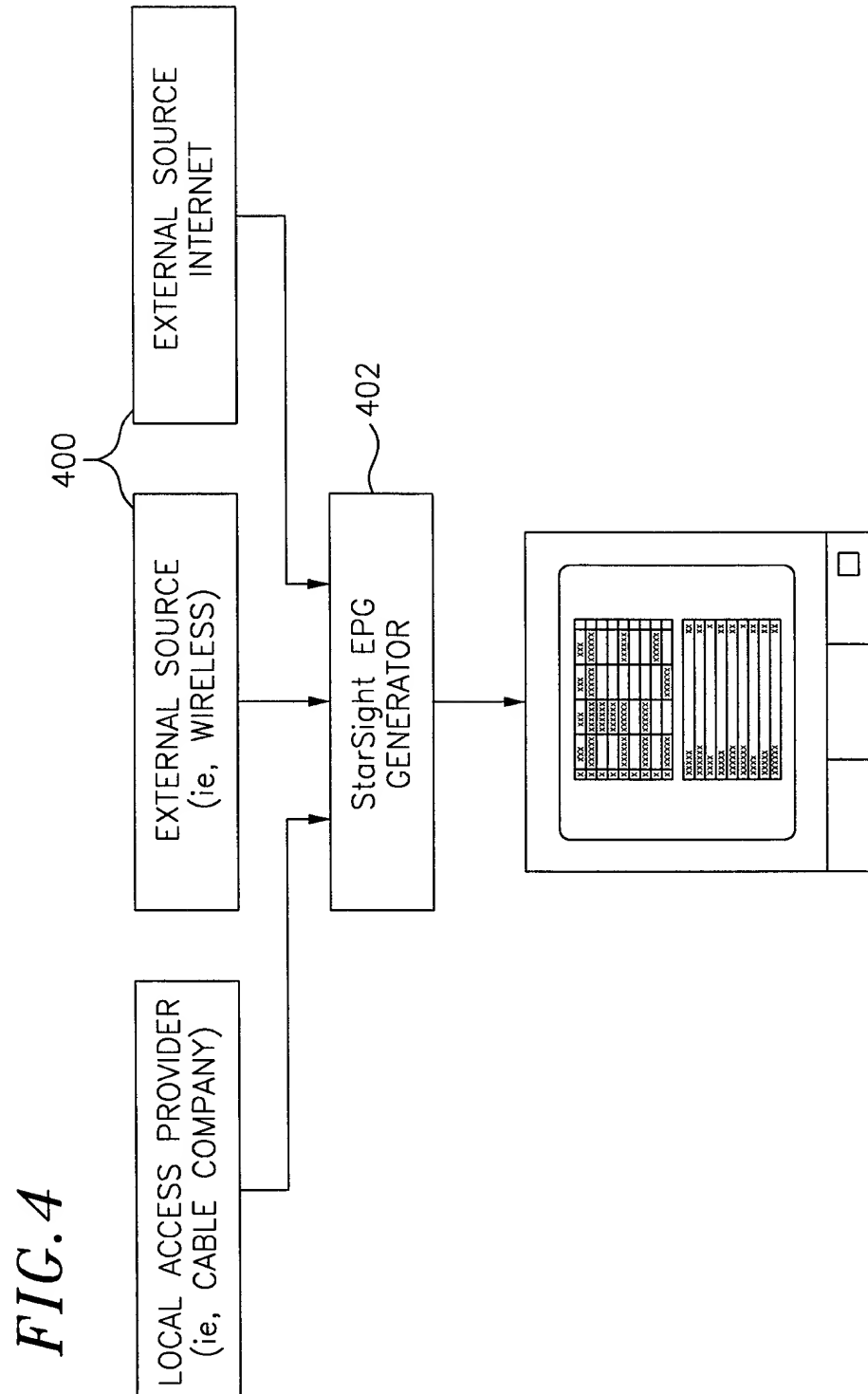
## TV SCREEN BACKGROUND

PAY PER VIEW PROGRAMS	
AIRPLANE (1980)	PG
BREATHLESS (1983)	R
THE FIFTH ELEMENT (1997)	PG-13
ELTON JOHN LIVE	-
EXTRA MARITAL (1998)	R
LEGEND (1985)	PG
NEVER SAY NEVER AGAIN (1983)	PG
AIRPLANE (1980)	R
THE RUNNING MAN (1987)	R
SPACE JAM (1996)	G
TYSON VS HOLMES VII	-
U2 RATTLE AND HUM (1988)	PG-13
THE YEAR OF LIVING DANGEROUSLY (1983)	PG
◀	▶

FIG. 3







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(71) Applicant: STARSIGHT TELECAST, INCORPORATED [US/US]; 3rd floor, 39650 Liberty Street, Fremont, CA 94538 (US).			
(72) Inventor: LEFTWICH, Jim; Suite F, 131 Hawthorne Avenue, Palo Alto, CA 94301 (US).		Published With international search report.	
(74) Agents: KRUEGER, Charles, E. et al.; Townsend and Townsend and Crew LLP, 8th floor, Two Embarcadero Center, San Francisco, CA 94111-3834 (US).		(88) Date of publication of the international search report: 21 January 1999 (21.01.99)	

Figure 1 is a block diagram of a system for displaying program information. The system includes a cable provider (30) connected to a decoder system (36A or 36B). The decoder system outputs video in digital format for display on a PC monitor (40) via a TV card (42). The decoder system also outputs baseball video (38) to a monitor. A satellite dish (34) receives signals from a base station (32). A family-friendly viewing guide (100) and a script fan's guide (102) are shown, both containing program information. A detailed view of a program entry (104) for "STAR TREK: VOYAGER" is provided, including details like title, length, and availability. A table (106) lists program details for "STAR TREK: VOYAGER - NEMISES".

PROGRAM OR EVENT	
NAME: STAR TREK: VOYAGER	
SECONDARY TITLE: NEMISES	
PROGRAM/EVENT NO: B637719354	
LENGTH: 01:00:00	
PREMIER TIME: 8:00PM SUN 3/2/1998	
AVAILABILITY DURATION: NO LIMIT	
SOURCE LINKS: www.upn.com	

STAR TREK: VOYAGER - "NEMISES"		UPN
AVAILABLE AFTER 3/2/1997 8:00PM PST		1 HOUR
TELEVISION SERIES	DIRECTOR/PRODUCER...	MPAA RATING G13...
DRAMA SERIES	PERFORMERS...	V2/S, S1/S, P1/S
SCIENCE FICTION	KEYWORDS...	LINKS...

BRIEF DESCRIPTION OF FEATURED PROGRAM

An electronic programming guide generator utilizing filters to select programming to display an electronic programming guide in a television system (38).

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<b>BE</b>	Belgium	<b>GN</b>	Guinea	<b>MK</b>	The former Yugoslav	<b>TM</b>	Turkmenistan
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<b>CI</b>	Côte d'Ivoire	<b>KP</b>	Democratic People's	<b>NZ</b>	New Zealand		
<b>CM</b>	Cameroon		Republic of Korea	<b>PL</b>	Poland		
<b>CN</b>	China	<b>KR</b>	Republic of Korea	<b>PT</b>	Portugal		
<b>CU</b>	Cuba	<b>KZ</b>	Kazakstan	<b>RO</b>	Romania		
<b>CZ</b>	Czech Republic	<b>LC</b>	Saint Lucia	<b>RU</b>	Russian Federation		
<b>DE</b>	Germany	<b>LI</b>	Liechtenstein	<b>SD</b>	Sudan		
<b>DK</b>	Denmark	<b>LK</b>	Sri Lanka	<b>SE</b>	Sweden		
<b>EE</b>	Estonia	<b>LR</b>	Liberia	<b>SG</b>	Singapore		

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/07567

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) :HO4N 7/10, 7/14

US CL :348/906, 10, 6, 12, 13; 455/4.2

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 348/906, 10, 6, 12, 13; 455/4.2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
APS - television, filter, schedule, programming, guide, database, memory, storage

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,559,548 A (DAVIS et al) 24 September 1996, col. 3, line 13 - col. 4, lines 28, col. 5, line 20 - col. 8, line 47, col. 12, lines 17 - 54, fig. 4, 5b, 12	1-4
A	US 5,589,892 A (KNEE et al) 31 December 1996	1-4
A	US 5,465,113 A (Gilboy) 07 November 1995	1-4
A	US 5,311,423 A (P. DEBORAH CLARK) 10 May 1994	1-4



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

09 AUGUST 1998

Date of mailing of the international search report

06 OCT 1998

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

Vivek Srivastava

Telephone No. (703) 305 - 4038